ABSTRACT

The importance of soybean as a source of good quality protein has not yet gained popularity in India, due to its unfamiliar flavour characteristics. Development of cheese cake type dairy analogues using soybean is considered to be an appropriate approach , since the products developed can utilise the advantages of moist heat and lactic fermentation. This approach is more suitable in the Indian context where the demand for milk and dairy products is high, while these products continue to be expensive.

The present work was undertaken to develop a cheese cake type product with soybean. This was carried out to a) establish specific processes and procedures required for the preparation of "muska" or soft cheese b) optimize processing conditions for the preparation of cheese cake with egg as a coagulating agent and its subsequent replacement with other natural thickening agents and c) improve overall acceptability characteristics of the final product with the inclusion of natural and synthetic flavouring enhancers. The resultant product was characterised interms of chemical, microbial and sensory quality characteristics during processing and refrigerated storage.

The experiments on the curd forming behaviour of soymilk, using five different commercial dahi samples indicated that the

addition of 5% reconstituted skimmed milk as a source of lactose was not sufficient to bring the desirable acidity , pH and curd strength.

Studies on the improvement of curd forming properties of soymilk showed that the lactose containing ingredients performed better compared to sucrose alone. Combination of sucrose with lactose containing ingredients caused improvement on the curd forming properties. Treatment of soymilk and lemongrass for the enhancement of flavour characteristics, did not alter the curd forming properties.

Results of optimizing the proportion of egg in cheese cake showed that an amount of 20 g % to the quantity of sugar-muska mix was sufficient to bring the desired textural characteristics of cheese cake when set at $70^{o}C$.

Among various thickening agents screened for the replacement of egg, addition of rice, wheat and potato at 20 g% level in the form of thickened cooked paste yielded cheese cakes with desirable textural characteristics.

Among the flavouring agents, cardamom, orange, mango and pineapple caused significant improvement on product

characteristics. With added flavours, there was no additional benefit derived from the bay leaf and lemongrass treatment.

In the the preparation of soymilk from soybean 68.47 % soysolids were recovered in soymilk and 22.7% solids were lost in okara. Among the total solids recovered in soy milk , recovery of protein was highest (86.16 %) followed by fat (71.40%) and carbohydrate (46.55%). After draining the curd to remove whey the resultant "muska" retained about 80.9 % solids from milk and only 11.8 % was lost in whey.

Cheese cakes prepared with egg contained 6.75 % protein, 1.5 % fat and 36.2 % carbohydrate. Cheese cakes prepared with rice, wheat and potato contained 4.0-4.75 % protein, 0.75-0.9 % fat and 41-43 % carbohydrate.

Storage studies of the orange flavoured cheese cake prepared with the thickening agents namely , egg, wheat, rice and potato indicated that the products can be stored in the refrigerator for atleast 3 months satisfactorily in terms of sensory and microbiological parameters.

The results of the present study established the possibility of incorporating soybean in the preparation of cheese cake with desirable organoleptic and shelf-life characteristics even without the addition of egg.